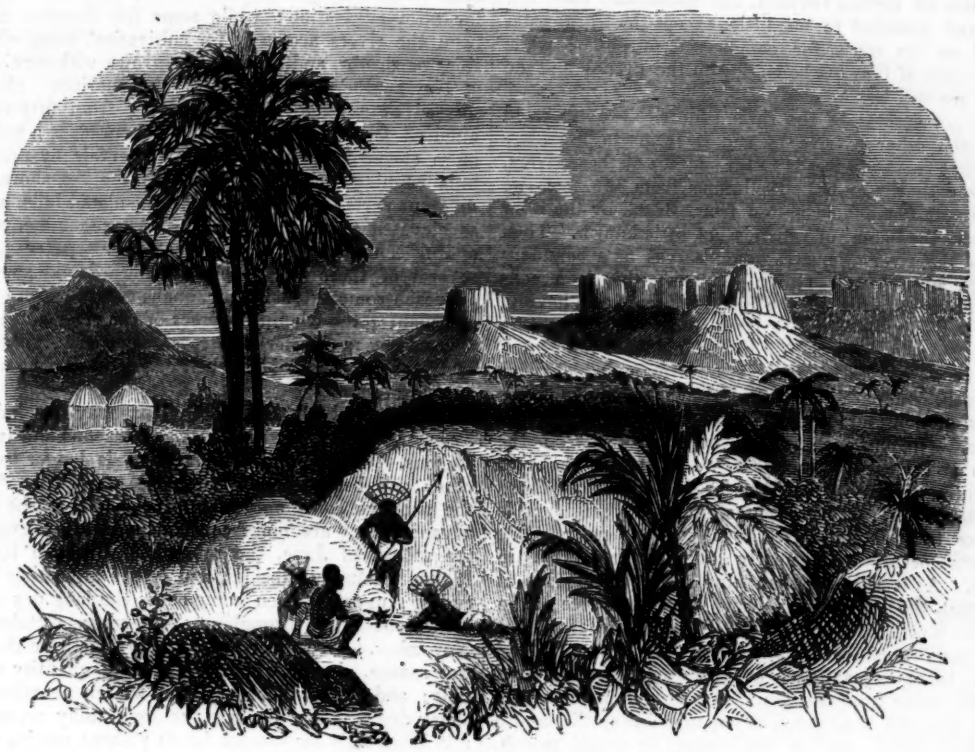
THE

Saturday Magazine.

No. 568. MAY 8TH 1841. { PRICE ONE PENNY

BRITISH GUYANA



RANGES OF ROAINA MOUNTAINS, BRITISH GUYANA

I. A Short Account of Guyana in General.

It is curious to observe, on glancing at a map of Asia, Africa, or America, how many spots occur which are possessed, more or less completely, by European nations. Few circumstances are more indicative than this, of the power and civilization of the European states. The greater purity of ideas on matters of religion, the enterprising and industrious habits of the people, and the knowledge of the various arts and sciences diffused among them, all tend to bring about this state of affairs.

America once presented features such as these, to a very remarkable extent. Canada was claimed by France; the eastern portion of what now constitutes the United States, was an English colony; the immense country of Brazil was subject to Portugal; while nearly all the remainder of South America, as well as Mexico and Florida, were possessed by Spain. Great changes have, however, occurred in the political condition of these regions. England has lost the United States; Spain has lost her immense possessions; Portugal has lost Brazil; while the possession of Canada has been transferred from France to England. The general effect of these changes has been to render the whole of North America, southward of the great lakes and the river St. Laurence, independent of European control; and likewise the whole of South America, except a small country or region towards the north-east border.

The Canadian and Russian territories in North America, we do not propose to allude to farther here; but we wish to draw the reader s attention to the portion of South America just referred to, and which is called *Guyana, Guiana,* or *Guayana;* a region of which very little notice has been taken in our works on geography.

The upper part of South America is divided into great basins, by the rivers Orinoco and Amazon, both of which flow eastward into the Atlantic; and the name of Guyana used formerly to be given to the whole of the region between these two mighty rivers, a surface of country more than equal to three times that of France. But in recent times the name has been applied to a district not more than one sixth of this extent; because Brazil on the one hand, and the republic of Venezuela on the other, have appropriated more than five-sixths of the former Guyana. Even in its present limited extent, the boundaries of Guyana are but ill defined; but there seems to have been a sort of agreement to determine the limits by this arrangement:—that all that part of ancient Guyana which is drained by secondary rivers flowing into the Amazons, shall form part of Brazil:—that the portion which is drained by rivers falling into the Orinoco, shall form part of the republic of Venezuela; and that part only whose rivers flow at once into the Atlantic, shall continue to receive the name of Guyana. This limited district has a sea coast about four hundred miles in extent, from the eastern mouth of the Orinoco, to the river Oyapock.

Yet this country, limited as it is compared with former times, is divided into three parts, owned respectively by the British, the Dutch, and the French; British Guyana being the most westerly, near the republic of Venezuela; French Guyana the most easterly, near Brazil; and Dutch Guyana between the other two. It is not possible, nor is it indeed of much importance at present, to determine how far inland the territory of Guyana extends; for scarcely an European foot has trodden any parts except those immediately contiguous to the coast. Until the Geographical Society employed Mr. Schomburghk, a few years ago, to explore the inland parts of British Guyana, the authorities knew but little, and attended to but little, except the towns established on the coast for commercial purposes; while the portions of Guyana belonging to the French and the Dutch are still less known.

The possessions of the three countries are separated from each other by rivers; and it seems to be understood that Guyana extends to the sources of these rivers, wherever they may be. Beginning from the east, we find French Guyana separated from Brazil by the river Oyapock, the extent of which is but little known. Then follows the river Marony, which serves as a boundary between French and Dutch Guyana: this is a considerable river, rising in the Sierra Acacay, and having, for a considerable distance from its mouth, an average width of a mile and a half. In the middle of the Dutch territory we meet with the river Surinam, which near its mouth, is about a mile in width, and is navigable for vessels of considerable size beyond the town of Paramaribo. On approaching the boundary between the Dutch and British possessions, we meet with the river Courantin, which has been better explored than those hitherto named. It has been ascended to a considerable distance towards its source, to a point where two fine cataracts occur, each nearly one hundred feet in height. As it is more than nine hundred feet wide at this point, the inference is drawn that the source of the river is much farther inland. From the cataracts the river runs north-east; and after presenting several rapids, becomes navigable at a distance of a hundred and fifty miles from the sea. For forty miles from the mouth its width is as much as one mile; near the mouth it is four miles; and at the estuary or actual mouth, ten miles.

Farther westward, in the British territory, is the river Demerara, whose length is known to be at least two hundred miles, and is supposed to be much more: as it affords an easy means of transport for goods, there are many settlements on its banks. Lastly, we may mention the river Essequibo, which traverses British Guyana, and which has been ascended to a distance of two hundred and thirty miles from its mouth. During its course it receives the river Rupernoony, more than two hundred miles in length; and afterwards another river, the Siparoony, whose source has not yet been ascertained. On approaching near its mouth, the Essequibo is farther augmented by the waters of the Mazaroony and the Cuyuni, two large rivers which unite about eight miles above their junction with the Essequibo. This last-named river contains, in different parts of its course, numerous rapids, and also many small rocky islands, and banks of mud and sand, which render the navigation somewhat dangerous. From the source of the Rupernoony to the mouth of the Essequibo, is a continuous water communication nearly five hundred miles in length.

All these rivers have a course more or less north-east, by which they empty themselves into the Atlantic, and divide Guyana into several sections. The country is farther divided into two sections by a hilly region running nearly parallel to the shore, and at a distance of from forty to seventy miles from it. Northward of this dividing belt is a flat low country, forming that which has alone been attended to by the nations who have established colonies there; while the district south of the mountain belt has been but little explored.

The low sea-girt land here alluded to, is nearly on a level with the sea at high water, and requires unremitting attention to the embankments and sluices necessary to keep out the sea. The greatest part of this low plain is covered with a soil of strong blue clay, highly impregnated with marine and vegetable salt, and with vegetable matter in a very divided state. The soil is very fertile, and thereby repays the outlay incurred for embankments and sluices. Other parts of the plain are open savannahs, that is, plains fit for pasturage, but not for farm cultivation; while some few districts distant from the rivers are unfit for cultivation, being without trees or shrubs, and entirely overgrown with fern.

The southern boundary of the maritime plain is formed of a range of hills, varying from fifty to two hundred feet in height; and then succeeds a series of more elevated plains, divided at intervals by ridges of hills running nearly parallel with the sea-shore. At different parts of these ridges are insulated hills, as well as elevated terraces, at heights of seven, nine, twelve, and fifteen hundred feet respectively. After passing several of these ranges of hills towards the south, we approach some extensive savannahs covered with grasses and plants; the winding courses of the river alone being marked by a border of trees. In some places the savannahs present a broad belt of good soil, but without any vegetation.

The general climate of Guyana may be indicated by saying that there are two rainy seasons and two dry seasons. One of the rainy seasons is longer than the other, and begins about the middle of April. At first the showers come only at intervals; but as the season advances they are more continuous, until at length, in the month of June, the rain pours down in torrents. It then gradually subsides, and ceases altogether by the end of August. Then commences the long dry season, which continues throughout September, October, and November. December and January constitute the short wet season, during which a moderate quantity of rain falls; and lastly, February and March constitute the short dry season. During the long rainy season, the rain often falls for several hours without ceasing; after which the remainder of the day is fine. Other times occur in which a few days will pass over without any rain falling. The heat is not so great as might be supposed from the almost equatorial situation (from about 2° to 8° N. latitude,) on account of the trade winds, which, passing over the whole breadth of the Atlantic from Africa to America, reach the coast of Guyana loaded with moisture, and the wind and moisture thus render the temperature of the air more supportable than it would otherwise be. There is likewise an alternation of land and sea-breezes, which,—as the sea-breezes are colder and blow in the day, and the land-breezes during the night,—contribute greatly to maintain an equable temperature. The thermometer seldom rises above 90°, or falls below 75°, so that the temperature throughout the whole year is such as we should term "summer heat." Thunder-storms, often violent but seldom very destructive, occur during the rainy seasons; the dreadful hurricanes of the West India islands being wholly unknown here.

It has been said that few countries on the surface of the globe can be compared with Guyana for vigour and luxuriance of vegetation, which shows itself especially in the great number of indigenous plants, and the large forest trees, which cover not less than one half of its surface. Many of the trees produce excellent timber; others are used for the making of furniture; such is the mahogany tree; or to furnish log-wood, while others are valuable on account of their fruit. Indian corn and rice are cultivated to such an extent, that three crops of

the former, and two of the latter, have been obtained in one year from some fertile pieces of ground. It was observed by Humboldt, and has since been confirmed by others, that wheat and similar grain do not succeed well in Guyana, since the altitude of the ground is too small; an intertropical latitude requiring a considerable elevation for the growth of these productions.

The territory of Guyana is inhabited by Europeans, African slaves, and native Americans. The Europeans went into this country as colonists, at different periods in past history; the Africans were, as in other and equally disgraceful instances, kidnapped from their houses and sold into slavery. The European settlers are principally descendants of the original Dutch colonists; the number of British and French being smaller. The native Americans of Guyana are, generally speaking, more civilized than the other aborigines of America. They cultivate Indian corn, Cassava, and some other roots; but they are still attached to a wandering life, and a slight inducement, or sometimes only fancy, leads them to abandon a well-cultivated piece of ground, and to remove to a wilderness, where they undergo much toil in rooting out the forest trees, and in preparing a new piece of ground. Some of these natives work for the European settlers as day-labourers. Their colour varies from that of a Spaniard or Italian, to a very dark copper hue.

These details relating to Guyana are to be taken as a whole, without reference to its division among the three European possessions. It was necessary to take this general view of the country, in order to understand the relation between the different Guyanas. But from this point we shall dismiss the Dutch and French settlements, and confine our attention to the British territory, which is indeed the only part of which much is known in this country. We will merely state in conclusion, that Dutch Guyana is frequently called Surinam, the capital being Paramaribo; and that French Guyana is called by them Cayenne, with a capital of the same name.

ON THE PLEASURE AND PROFIT ARISING FROM CULTIVATING PLANTS AND FLOWERS.

It was a saying of the celebrated Sterne, "that most people have their hobby-horse or amusements;" the literal meaning of which I take to be, that most people have their favorite pursuits or amusements; and so long as these pursuits are compatible with our duty to God as Christians, and militate not against the welfare of our fellow-men, so far are they innocent, rational, and profitable. Among all the various amusements which this fascinating world holds out, I think none is more innocent, more rational, or more profitable than the cultivation of flowers: those beautiful gems with which our divine Creator has studded our meadows, and kindly furnished to beautify our gardens; whose brilliant colours vie with the rainbow, and infinitely surpass the most costly tints, and whose balmy fragrance scents the surrounding atmosphere with perfumes more agreeable than the spices of Arabia! Who can behold their exquisite symmetry; who can admire their diversified yet splendid colours; or, who can feast his senses on the aromatic sweets which emanate from their beautiful blooms, without feeling a sort of sacred pleasure stealing imperceptibly into his very soul, and leading its finest feelings willing captives to their inimitable charms?

It is said, and very truly too, that the study of astronomy, that sublime science, which teaches the various revolutions of those spheres which nightly bespangle the nocturnal heavens, is admirably calculated to lead the mind from Nature up to Nature's God. And if the contemplation of those luminaries, placed as they are at such immeasurable distances; and which can act only upon the ocular nerves, has this tendency; how much more ought the beauties of Flora, producing as they do, a threefold evidence on the senses! Yes—

> The blushing tint, the crimson streak,
> The powers of heavenly wisdom speak;
> And all their balmy fragrance join,
> To show their Author is divine.

In fact, there is not a blade of grass, or a wild flower that decks our lawns, but which is replete with instruction, and shows forth the handy-work of the Great and glorious Creator of the universe.

> . . . . . Not a tree,
> A plant, a leaf, a blossom, but contains
> A folio volume. We may read, and read,
> And read again, and still find something new,—
> Something to please, and something to instruct,
> E'en in the noisome weed.—Hurdis.

Solomon, the wisest man, was a great admirer of the beauties of the floral kingdom. And our blessed Redeemer expressly commands us to "consider the lilies of the field;" and if, with an example like that of Solomon before us, and after receiving a command from our Saviour himself, we can still remain insensible to their charms—still refuse to contemplate their inimitable beauties, we must lack much of that spirit of refinement which purifies the grossness of depraved human nature, and makes man fit for the society of Heaven.

> . . . . . The men
> Whom nature's works can charm, with God himself
> Hold converse: grow familiar day by day,
> With his conceptions; act upon his plan;
> And form to his, the relish of their souls.—Akenside.

Among all the productions of the vegetable kingdom, there is not a single individual but which has its uses; even those very tribes which daily remind us of man's awful fall, and the curse pronounced upon the earth for his sake; have in them properties of peculiar usefulness, and prove beneficial to the wants of man.—God hath made nothing in vain!—some are for use, others for ornament, and not a few, perhaps all, are possessed of medicinal properties. Properties! without which, life itself would be a burden; and which, if utterly deprived of, it would be utterly impossible for man to exist.

Since then, there is such innocent amusement, such rational pleasure, and such mental improvement in the cultivation of plants and flowers, and since it is so well calculated to enhance our spiritual interests, and render us more fitting for the society of beings of a higher order than ourselves, and especially for the society of our divine Maker, let me, for one, disdain more ignoble and trifling pursuits, let me fly from the deluded votaries of mere sensual gratifications, and in

> . . . . . The calm retreat!
> (Far from the noisy haunts of sordid men,)
> Where Flora trains her lovely offspring up,
> To captivate and charm! There let me muse!
> Surrounded by her rich and dazzling train,
> Till lost in ecstasy, my soul takes wing;
> And soars from nature up to nature's God!
> There may I lie, wrapped in the flowery vest
> Of silent rapture, till my soul breaks forth,
> And in the language of the immortal bard,
> Who sung the fatal fall—transported cries,
> "These are thy glorious works, Parent of good!
> To us invisible, or dimly seen
> In these thy lowest works; yet these declare
> Thy goodness beyond thought, and power divine!"

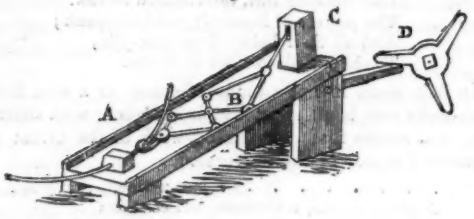
[From Harrison's *Floricultural Cabinet.*]

A mind, by knowing itself, and its own proper powers and virtues, becomes free and independent. It sees its hinderances and obstructions, and finds they are wholly from itself, and from opinions wrong conceived. The more it conquers in this respect, (be it in the least particular,) the more it is its own master, feels its own natural liberty, and congratulates with itself on its own advancement and prosperity.—Shaftesbury.

WIRE-DRAWING.

2 MANUFACTURING DETAILS

Fig. 1.



IN our former article on this subject we gave a slight sketch of the wire-manufacture, from early times to the present. The mode of manufacture may now fittingly be brought under our notice.

In detailing the steps by which this branch of manufacture was improved in Germany, we had occasion to allude to Rudolph's invention. The machine by which he manufactured wire was similar to that represented in the annexed cut, fig. 1; in which A is an inclined plane, at the lower end of which is placed a drawing-plate, perforated with one or more holes; B is a jointed shank, terminating at the lower end in a pair of pincers, and at the other connected with a lever C; the tail-piece of this lever being so placed as to be pressed down by the arms of the rotating cam, D. By this means the pincers are drawn back, and the wire gradually forced, or rather pulled, through the holes in the drawing-plate, thus assuming the form and size of the hole through which it is made to pass.

On many parts of the Continent, most iron wire was, until the last few years, made by a machine somewhat resembling this. But there are many faults in wire thus produced; in the first place, every piece of wire exhibits, at intervals of a few inches, the marks of the pincers; and, in consequence of the wire being drawn by a succession of jerks, the surface becomes more or less unequal.

But by the improved modern processes, the wire acquires a surface and consistency almost mathematically uniform. Let us suppose that iron is the metal of which the wire is to be made. A square bar of iron is first worked into a cylinder, by being passed between rollers. These rollers are turned or cast with grooves on their peripheries, at right angles to the axes; the grooves being made of different sizes, so as gradually to reduce the bar to the required thickness. These rollers are made of hardened steel, and are generally about eight inches in diameter. When a pair of rollers, with corresponding grooves, are made to revolve three or four hundred times in a minute, a bar of steel, an inch square, and thirty inches long, is drawn from the heating furnace at a strong red heat, and placed in one of the grooves. By the aid of machinery it is speedily drawn through the largest groove. Being then introduced into the next sized groove it is further reduced in size; until, after having passed through eight grooves in about a minute, it is increased from two and a half to thirty or forty feet in length, and from a square to a cylindrical form. As the bar passes through any one of the grooves, it comes in contact with a third roller, so placed as to turn the end of the bar backwards, and drive it into the next smaller groove: the bar is thus performing a serpentine path backwards and forwards, between the rollers. The iron is thus reduced to the size of a sixth or eighth of an inch in diameter, and is then laid in coils, which are sold to the wire-drawer for farther reduction into wire of any required degree of fineness.

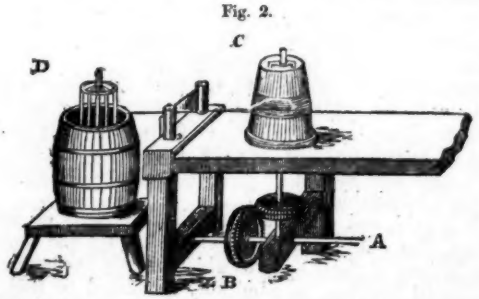
For some purposes the iron is prepared by *tilting* instead of *rolling*. A faggot of small bars is welded together by being heated, and then forged with a large tilt hammer, weighing a hundred pounds, and making one hundred and thirty strokes per minute. When an iron bar of proper quality is thus formed, it has to be worked into rods of a proper size for the wire-drawer; and for this purpose the workman heats six or eight inches of the end, and works it regularly under a smaller tilt hammer, weighing about fifty pounds, and making twenty strokes per minute. By a succession of strokes, and re-heatings, the iron becomes reduced to the proper diameter, and acquires greater tenacity or toughness than if prepared wholly by the rollers, a quality very advantageous for some purposes.

The square bar of iron being reduced to a cylindrical rod, the wire-drawer commences his operations. The drawing-plate, by which the thickness of the wire is determined, is generally a stout piece of the best shear steel, about six inches in length, an inch and a half in diameter, and with two opposite sides, one flat, and the other roundish. Numerous holes are punched, in a tapering form, so as to be larger at the flat than at the round side of the plate. This plate is set up in a vertical position, and a force is applied to draw the rod successively through the various sized holes. This force is either hand, steam, or water power, according to circumstances.

Supposing the power to be manual labour, the workman proceeds as follows:—The point of the rod, after being sharpened to some distance from the end, by hammering or filing, is inserted through the largest hole, and the drawing-plate is placed behind two stout iron pins on the work-bench. A pair of nippers, attached to a short chain, is made to grasp the point of the rod, and this chain, by means of a lever, is drawn back, so as to drag the rod a small distance through the hole in the plate. When a certain quantity is thus pulled through, the workman attaches it to the surface of a conical or cylindrical drum, placed vertically in front of the drawing-plate. This drum is made to revolve on a vertical axis by a lever springing horizontally from its upper end; and the workman sets this drum in rotation by walking round his low work-bench, and pushing the lever before him. The coil of rod or thick wire is held in one hand, the tapered end, after passing through the draw-plate, is attached to the drum, and the man, by forcing the drum to revolve, at once draws the wire through the hole in the plate, and winds it in a coil on the drum. When all the wire has been in this way pulled or drawn through one hole, the whole process is repeated with a hole of smaller diameter; and so on, until the wire has been reduced to the required thickness. When it becomes so fine that little power is required to draw it, the workman adopts an easier arrangement of machinery, and winds the wire on an iron cylinder, which has a lever capable of being moved round by hand, instead of requiring from the workman a circuit round his work-bench.

When the wire is drawn by steam, water, or horse power, instead of by manual labour, a somewhat different arrangement is adopted, as in the adjoining figure.

Fig. 2.



A is a horizontal shaft, set in rotation by the moving power supposed to be situated at the right hand of the

cut. A vertical bevel wheel, B, on this shaft, catches in the teeth of a horizontal wheel, connected with a vertical spindle, whereby the conical drum, C, fixed to the upper end of this spindle, is set in rotation. On a stool near the draw-bench is a tub, E, containing starch-water, or stale beer grounds, in which the wire, coiled upon the reel, D, is dipped, to remove the oxide that may adhere to the surface. Between the reel and the drum is seen the draw-plate, through holes in which the wire is drawn by the revolution of the drum. The reel is so placed in or on the cask as to be able to revolve as the wire is unwound from it. By a succession of drawings through holes of different sizes, the wire is at length reduced to the desired size.

The manufacture of the draw-plates has always been deemed a matter of great importance, since the too rapid abrasion of the edges of the holes would cause considerable inconvenience and loss to the manufacturer. The French pay particular attention to their plates, and produce them in the following manner. A band of iron is forged two inches broad and one inch thick; and about a foot in length is cut off and heated to redness in a charcoal fire. It is then beaten on one side with a hammer, so as to work the surface into furrows or groves, in order to aid the retention of a substance called *potin*, which is to be welded on one side of the iron. This potin is nothing but fragments of old cast-iron pots. These fragments are broken on an anvil, and mixed with pieces of white-wood charcoal. The mixture is put into the forge, and heated till melted into a kind of paste. Fusion and cooling are repeated ten or twelve times, by which the qualities of the cast-iron are changed, and made nearly analogous to those of steel; yet, so far from becoming brittle, it will yield to the blows of the hammer and the punch.

The bar of iron which is to make the draw-plate is covered with a layer of prepared potin, on the side which is furrowed, and the thickness of about half an inch. The whole is then wrapped up in a coarse cloth, which has been dipped in clay and water, and then put into the forge. The potin is more fusible than the forged iron, and melts more quickly: during this fusion the plate is withdrawn from the fire occasionally, and the potin is gently hammered, to make it melt and amalgamate with the iron. This process of heating and hammering is frequently repeated, to render the union more perfect.

The union being effected, the plate is again heated and forged by two men, by which it is expanded to the dimensions required. Cast-iron, when used alone, cannot be forged; but, in the present instance, the alloy of cast with wrought-iron, and the repeated fusion with charcoal, give to the plate the property of malleability. While the plate is still hot, the holes are pierced. This is effected with a well-pointed punch of German steel, applied on that side of the plate which was not covered with potin. The plate requires to be heated four times in the fire before the punching is effected; and at every heating a finer punch is employed, so as to produce a taper hole. The holes are not punched quite through by the plate-makers; but the wire-drawers, when the plate is quite cold, finish the piercing by means of sharp tools, and give to the holes what size they please. Each plate is pierced with a great number of holes, all of which are conical, the apex of the cone being on that side of the plate which was coated with potin, and which is harder than the other. In some manufactories the draw-plates are made of common hardened steel, without the peculiar preparation here described.

During the process of reducing the size of wire, by drawing through a series of holes decreasing in diameter, the iron or other metal is liable to become very stiff and hard, and requires to be repeatedly softened. The iron is heated red-hot in a closed furnace, and then placed in a vessel containing acid liquor: this immersion causes the scale produced by the heating to come off, on the wire being afterwards laid in stale-wort, or the grounds of ale, and then well scoured.

The different metals require somewhat different modes of treatment, during their reduction to the form of wire; but the above details will convey a general idea of the processes.

The quantity of wire used in our manufactures is enormous. Besides the strings of musical instruments, pins, and needles, and countless other small wares, the cards for the cotton manufacture consume a very large quantity. These cards are strips of leather covered with small wires; and Professor Barlow has adduced a remarkable proof of the quantity of wire used for making these cards. Machines have been invented, by the action of which the wires are cut, prepared, and fixed in the leather, at the rate of 130 per minute; and considering a working-day to consist of eleven hours, 85,800 inches of wire are worked up by each machine. There are one hundred of these machines in the manufactory of Mr. Dyer of Manchester; and these machines will therefore work up 8,850,000 inches of wire per day, or to the amount of about thirteen miles and a half in length.

MEMORY.

Say whence the charm that those sweet scenes impart,
To raise at once, and to subdue the heart—
To paint sweet fiction in the hues of light,
And lead the mind through ages wrapt in night!
Whence the soft power that speaks alike to all,
And binds the sternest in her thrilling thrall!
'Tis thine, dear Memory, thus to fill the soul,—
Thus o'er the heart to exercise control,—
To wrest from time some portion of his prey,
Breathe life in dust, and animate decay!

No joy we boast, but which the coming hour
May whelm in sorrow, or with pain o'erpower.
Still former scenes sweet recollection claims—
Still burn the embers of our former flames—
Still every cloud fond memory tints with light,
And gilds with stars the mind's obscurest night;
O'er life's rude storms a rainbow hue she casts,—
Her's is the beam that every cloud outlasts.

Thus, when the traveller quits his native shore,
The scenes he leaves seemed ne'er so dear before;
As less and less its fading traces grow,
His heart is grieved with unavailing woe—
His anxious eye he strains across the main,
To view those native, long-loved scenes again.
So by thy light, sweet Memory, we survey
Youth's hours of bliss, and childhood's happier day—
So once again, while tears the eyes bedew,
Reflected in thy glass these scenes we view.
Sweet childhood! still we mourn those halcyon hours
When guileless peace and innocence were ours—
When every change could only add to joy,
Which neither woe could blight, nor care destroy!
When life was sweet, and every sorrow feigned,
The elastic mind defied, and soul disdained;
When all was pure as Eden's lovely bowers,
And every smiling path was strewn with flowers.
Delightful days! alas, ye blushed to fade—
Your bloom 'neath sorrow's blighting breath decayed;
The flower which smiles amid the summer gales,
When autumn blows, its short-lived lustre fails;
The leaf that spring beholds so bright and green,
A few short months, and sad and sear 'tis seen:
The opening buds that brightly meet the morn,
Oft from their stem by evening blasts are torn:
So does keen anguish smite the woe-worn brow,
And grief its empire is maintaining now.
And must the withered leaf alone be here?
Must every smile be followed by a tear?
No! still that eye one kindling spark relumes—
Its wonted fires it once again resumes:
As the warm brilliance of the sunbeam shines,
And melts the snow that crowns the Apennines—
Thus lights the heart sweet Memory's genial ray,
Thus gilds its woes, and smiles its cares away. T. A.

GARDEN HERBS.

Wormwood.

Common Wormwood, (*Artemisia absinthium*), is a perennial herb, growing wild in many parts of Great Britain; but also cultivated for medicinal purposes. Many species of Artemisia are reared in gardens, but their virtues were never less called into action than at present. A favourite plant of this family is the Southernwood (*Artemisia abrotanum*), seldom absent from the cottager's garden, where it is known by one of its common names, *old man, maid's delight*, &c. This aromatic herb is of a shrubby habit, growing to the height of three or four feet, but seldom producing flowers in this country. In warmer climates it puts forth an abundance of small yellow blossoms. It will exist in the densest parts of a crowded city, where the rays of the sun seldom visit it, and where the air is very impure. It was formerly used in medicine; and the tincture it affords, being employed in the form of a lotion or ointment, is said to remove cutaneous eruptions, and also to prevent the hair from falling off. The woody part of this plant yields a yellow dye. We must pass by the other species, and confine our remarks to the subject of the present article.

The root of the common wormwood is branched and woody; the stems rise to two or three feet, are branching, angular, and furrowed. The lower leaves are bipinnate; the upper digitate with oblong, obtuse, very entire segments. The flowers are pedicellated, nodding, hemispherical, and of a brownish-yellow colour. The florets of the disk are numerous, but those of the ray few; and the receptacle is covered with white silky hairs, shorter than the calyx. The botanist will recognise it from the above description, as belonging to the natural order *Compositæ;* in which it is a member of the *Corymbiferous* tribe.

The generic name of this plant is said to have been conferred by Queen *Artemisia*, a Carian princess, who adopted the plant, and changed the appellation from *Parthenis* to that of her own name. The knowledge and use of this herb is of high antiquity. The Egyptians made great use of it in their worship of Isis. Branches of it were carried by the priests of this goddess in their solemn and religious processions, when they recited in verse the arts which had been taught by this deity. The Romans also made use of wormwood in their solemnities and sacrifices, particularly during the festival called Latinæ; when those who gained the prize in the chariot race and other games, had the decoction of this herb presented to them to drink; which honourable reward was devised, according to Pliny, to secure the good health of the victorious charioteer, seeing that his success had rendered him worthy of long life.

The bitterness of this herb has been noticed in the sacred Scriptures; and we find wormwood mentioned, in a figurative manner, to express that "evil and bitter thing," the departure from God, and from his commandments; and also to represent the woe consequent thereon. We quote a few passages:—

Lest there should be among you man, or woman, or family, or tribe, whose heart turneth away this day to go and serve the gods of these nations; lest there should be among you a root that beareth gall and wormwood.—Deuteronomy xxix. 18.

Ye, who turn judgment into wormwood, and leave off righteousness in the earth.—Amos v. 7.

And the Lord saith, Because they have forsaken my law which I set before them, and have not obeyed my voice, neither walked therein; but have walked after the imagination of their own heart and after Baalim, which their fathers taught them. Therefore I will feed them, even this people, with wormwood, and give them water of gall to drink.—Jeremiah ix. 13, 14, 15.

The nauseous flavour of wormwood has caused it to be nearly discarded from modern use, although it is one of our most powerful bitters. Its bitterness is derived from what is usually called extractive matter, and is retained by the decoction after long boiling. A pound of the herb yields about five ounces of this extract. The taste of the Romans must have been extremely different from ours, or they must have had such a supreme regard for their health as to take willingly what was repugnant to them, for Pliny tells us, that wormwood was, in his days, a common drink among the people, and held in high esteem. It was considered astringent and diuretic, and was said to prevent sea-sickness, and to create appetite. It was also given as a remedy for jaundice, mixed with honey and nitre for the cure of the quinsy; and as a fomentation for chilblains. The smell of the herb was thought to procure sleep to invalids. The ancients also put it into their ink to prevent mice from eating their writings; laid it in wardrobes to preserve their garments from the moth; and burnt it to drive away gnats. The ashes of the plant were mixed with oil of roses, and used to blacken the hair of the head.

All the old writers agree in saying, that the species of wormwood which grows on the sea-coast is very advantageous to cattle, and that sheep in particular, when fed on it, fatten very rapidly. "As we all know," says Philips, "that the feeding on savoury herbs gives a relish to the flesh of animals, it is worthy the trial of those, who feed flocks on the coast, to sow a plot with this hardy plant. It may be raised upon any soil, either by seeds or slips in March, and the seeds ripen in August."

Wormwood is sometimes spoken of as an antispasmodic, and the olden writers extol it as a vermifuge; but it deserves little attention at the present day in either of these characters. The French are fond of it, and spoil some of their excellent *liqueurs* with its flavour. The beverage, called *eau d'absinthe*, employed by gourmands to increase their appetite, is prepared from this plant, by the addition of alcohol, and subsequent distillation. Some of our publicans sell a liquor, called *purl*, which is said to be all seasoned with the tops of wormwood.

This herb should be gathered when in seed, as that is the time when its virtues most abound. Dr. Lewis thought, that the roots might be applied to some useful purpose; their virtue resides chiefly in the cortical part; and rectified spirits extract their flavour better than watery liquors. The oil of wormwood being rubbed on furniture, is said to prevent the attacks of insects. This oil is obtained by distillation, one hundred weight of the fresh herb yielding upon an average four ounces.

Before the hop had become so well known and highly prized, great use was made of wormwood in the composition of beer. When properly managed, the flavour given to malt liquor by this herb is said to be nearly equal to that of hops, and has been by some persons even preferred. For this purpose the plant is gathered when in seed, and hung up in small bundles to dry. When thoroughly dried, a certain quantity of good strong malt liquor is to be impregnated with it. This is set by for use, to add to the beer when brewed; agreeably to the taste, or the time it is required to be kept. This method is mentioned in the *Philosophical Transactions*, and it is also added, that the wormwood intended for this purpose should have its seeds carefully preserved in drying, and it is best when not used till the year after it is gathered. Perhaps it was from the above use of wormwood in the preservation of ale that a common species (*Artemisia vulgaris*) obtained the name of *Mugwort*. This species was also formerly called *Cingulum Sancti Johanni*, because it was foolishly imagined, that if a crown was made of this herb and worn upon the eve of St. John, (a time when many other superstitions were practised,) it would secure the person who should wear it and afterwards throw it into the fire, uttering certain words, from all diseases and misfortunes,

for the following year. Mugwort was also suspended over the doors of houses, to prevent evil from happening to the inhabitants; it was worn by travellers to save them from weariness during their journey; and was said to purify even a pestilental air. For this latter notion there seems some ground, since we are told by Philips, that a gentleman at the bar, to whom he recommended it, assured him that he had experienced its reviving qualities in heated courts, as being nearly equal to a change of air. Some persons are of opinion that the fabulous and superstitious notions concerning this plant, all took their origin in virtues which really exist in it; and that the custom of travellers to provide themselves with this herb arose from the relief it affords when used to bathe the feet that are weakened or galled by over exertion. The testimony of our modern Pharmacopœias is, however, different from this; for it is expressly stated that as an external application, infusion of wormwood has no advantage over warm water.

There is a sort of wormwood, common in China, which furnishes the *moxa* used by them as a cautery. This is a soft woolly substance, prepared from the young leaves of the plant by beating them when thoroughly dried, and rubbing them in the hands till the fine fibres only are left. A little cone of this substance is laid on a diseased part, previously moistened, and is then set on fire at the top. It thus burns slowly down, producing a dark spot on the skin, which ultimately sloughs and produces a scar. This mode of treatment is much used in Eastern countries.

Culpeper devotes a long astrological essay to the subject of wormwood, and is more than usually droll. We give a few extracts from him, as tending to illustrate the state of knowledge of the time in which he wrote.

I would willingly teach astrologers and make them physicians, if I knew how, for they are most fitting for the calling: if you will not believe me, ask Dr. Hippocrates and Dr. Galen, a couple of gentlemen that our College of Physicians keep to vapour with, not to follow. In this herb I shall give the pattern of a ruler, the sons of art rough cast, yet as near the truth as the men of Benjamin could throw a stone; whereby my brethren, the astrologers, know by a penny how a shilling is coined. As for the College of Physicians, they are too stately to learn, and too proud to continue. They say a mouse is under the dominion of the Moon, and that is the reason that it feeds in the night; the house of the Moon is Cancer; rats are of the same nature with mice, only they are a little bigger; Mars receives his fall in Cancer, *ergo*, wormwood being an herb of Mars, is a present remedy for the biting of rats and mice.

Wheals, pushes, black and blue spots coming either by bruises or beatings, wormwood, an herb of Mars, helps, because Mars (as bad as you love him, and as you hate him) will not break your head, but will give you a plaister. If he do but teach you to know yourselves, his courtesy is greater than his discourtesy.

Culpeper winds up his Essay thus:—

He that reads this and understands what he reads, hath a jewel of more worth than a diamond: he that understands it not, is as little fit to give physic. There lies a key in these words which will unlock (if it be turned by a wise hand) the cabinet of physic. I have delivered it as plain as I durst; it is not only upon wormwood as I wrote, but upon all plants, trees, and herbs; he that understands it not, is unfit, in my opinion, to give physic. This shall live when I am dead; and thus I leave it to the world, not caring a farthing whether they like or dislike it. The grave equals all men, and therefore shall equal me with all princes; until which time the eternal Providence is over me; then the ill tongue of a prating fellow, or one that hath more tongue than wit, or more proud than honest, shall never trouble me. Wisdom is justified by her children. And so much for wormwood.

Wit loses its respect with the good when seen in company with malice; and to smile at the jest which plants a thorn in another's breast, is to become a principal in the mischief.—Sheridan.

SOLUBLE GLASS.

Several ancient writers speak of a Roman architect who discovered the means of so far altering the nature of glass as to render it *malleable;* but the Emperor Tiberius, fearing lest the value of gold might be lowered by the discovery, caused the architect to be beheaded, and thus his secret died with him. A similar discovery is said to have been made in France, in the reign of Louis the Thirteenth. The inventor presented a bust formed of *malleable* glass to the Cardinal Richelieu, and was rewarded for his ingenuity by perpetual imprisonment, lest the French glass manufacturers should be injured by the discovery. In our own day a description of glass, perhaps more remarkable, and certainly far more useful than *malleable* glass, has been discovered by M. Fuchs, the curious properties and important applications of which we propose briefly to notice.

Soluble glass is a union of silica and an alkali which has, in addition to some of the properties of common glass, the property of dissolving in boiling water. The preparation of soluble glass does not greatly differ in its early stages from that of common glass, an account of the manufacture of which will be found in the third volume of this work, to which we refer the reader.

When sand and carbonate of potash are heated together, the carbonic acid is not entirely driven off, unless the sand be in excess, but the whole of the gas may be expelled by the addition of powdered charcoal to the mixture.

Carbonate of potash and pure sand being taken in the proportion of two to three, four parts of charcoal are added to every ten parts of potash and fifteen of sand. The charcoal accelerates the fusion of the glass, and separates from it all the carbonic acid, a small quantity of which would otherwise remain, and exert an injurious effect. In other respects the same precautions that are employed in the manufacture of common glass are to be observed. The materials must first be well mixed, then fritted, and finally melted at a high heat, until a liquid and homogeneous mass be obtained. This is removed by means of an iron ladle, and the glass pot filled with fresh frit.

The crude glass thus obtained is usually full of bubbles: it is as hard as common glass: it is of a blackish gray, and more or less transparent at the edges. Sometimes it has a whitish colour, and at others is yellowish or reddish, indicating thereby that the quantity of charcoal has been too small. Exposed to the air for several weeks, it undergoes slight changes, which tend rather to improve than injure its qualities. It attracts a little moisture from the air, which slowly penetrates its mass without changing its aggregation or appearance, except that it cracks, and a slight efflorescence appears at its surface. If after this it be exposed to heat, it swells up, owing to the escape of the moisture it has absorbed.

In order to prepare the glass for solution in water it must be reduced to powder by stampers. One part of the glass requires from four to five of water for its solution. The water is first boiled in an open vessel, the powdered glass is added gradually, and is continually stirred, to prevent its adhesion to the vessel. The boiling must be continued for three or four hours, until no more glass is dissolved. If the boiling be checked before the liquor has thus attained the proper degree of concentration, carbonic acid will be absorbed by the potash from the air, and produce an injurious effect. When the solution has acquired the consistence of syrup, and a density of 1·24, it is fit for use. It is then allowed to repose, in order that the insoluble parts may be deposited: while it is cooling a film forms on the surface, which after some time disappears, or may be dissolved by depressing it in the liquor.

Soluble glass being employed only in the liquid state, it is preserved for use in solution. No particular care is necessary to preserve the liquid, as, even after a long

space of time, it undergoes no perceptible change, if the solution have been properly prepared. The only precaution is not to allow too free an access of air to it.

Soluble glass may be prepared by using carbonate of soda, instead of that of potash. This glass has the same properties as the other, but is more valuable in its applications. The solutions of these two kinds of glass may be mixed in any proportion, and the mixture is sometimes more useful than either of the solutions separately.

The solution of soluble glass is viscid, and when concentrated becomes turbid or opalescent. The solution unites with water in all proportions. At a density of 1·28 it contains nearly 28 per cent of glass, and if the concentration be carried beyond this point, it becomes so viscid that it may be drawn out in threads like molten glass. When the solution is applied to other bodies, it dries rapidly in the air, and forms a coat like a varnish; a property which leads us to notice some of the numerous and varied applications of this curious preparation.

It is well known that all sorts of vegetable matter, such as wood, cotton, hemp, linen, paper, &c., are combustible, but in order to burn them, two conditions are necessary,—an elevated temperature, and free access of air to supply the oxygen necessary to their conversion into water and carbonic acid. When once inflamed their own combustion supplies the heat necessary to the chemical action, provided they be in contact with the air. If deprived of such contact, and made red-hot, they will yield inflammable volatile products, but the residual carbon will not burn, because deprived of air; and thus the combustion will cease of itself. Such is the property of all the fixed fusible salts, if they be composed of substances incapable of yielding their oxygen at a low red heat, either to carbon or hydrogen. Such salts melt as the vegetable matter becomes heated: they form upon it a coating impermeable by air, and either prevent or limit the combustion. The phosphate and borate of ammonia have such a character, but they are so readily soluble in cold water as to be liable to objections which are not found in soluble glass. This last-named substance forms a solid and durable coating, which suffers no change by exposure to the air (since soluble glass possesses the valuable property of being almost entirely unaffected by cold water): it does not involve any great expense, and is easy of application. But in order that it may not fail, particular care must be taken, both in preparing and employing it. To cover wood and other bodies with it the solution must be made of a pure glass, otherwise it would effloresce and fall off. But still a slight degree of impurity is not injurious, although after a few days a slight efflorescence will appear: this may be washed off by water, and will not occur a second time. When a durable coating is to be applied to wood, the first solution must not be too strong, for if it be it will not be absorbed: it will not displace the air from the pores, and consequently will not adhere strongly. A more concentrated solution may be employed for the after-coats, but each coat must be dry before another is applied, and the drying, in the most favourable weather, will occupy at least twenty-four hours. When the glass is made with potash the coating is liable to crack: this defect does not apply to glass made with soda.

Although soluble glass is of itself a good preservative from fire, yet it fulfils the object better when mixed with incombustible powders, such as those procured from clay, whiting, calcined bones, powdered glass, &c. In applying soluble glass to the woodwork of a public building at Munich ten per cent of yellow clay or yellow earth was added. After six months the coating had suffered but little change: it was damaged only in a few places where it had need of some repair. This arose from the very short time allowed for the preparation and application of the glass.

None of the methods hitherto proposed for making cloth fire-proof appear so advantageous as the application of soluble glass, for it does not act upon vegetable matter, and completely closes the spaces between the threads: it fixes itself into the web in such a way that it cannot be separated, and increases the durability of the fabric. The firmness which it gives to stuffs does not injure them for use as curtains, because it does not prevent them from being rolled easily. The application of soluble glass to cloths is not a difficult operation, but still it is not so easy as might at first be supposed. It is not sufficient to coat or dip them in the solution: they still require after this operation to be subjected to pressure. M. Dumas suggests that this object might perhaps be best attained by passing them between rollers plunged in the solution. When a cloth is only coated with soluble glass, and put into the fire, it will remain incandescent after it is taken out. This is not the case when it has been properly impregnated with the solution. A still better purpose is answered in this case, when litharge has been added to the solution: the stuff in drying yields to the shrinking of the mixture, and becomes inseparable from it, which is the reverse of what happens when applied to wood. A single part of litharge in fine powder is sufficient for fourteen parts of concentrated liquor.

Soluble glass is capable of many other applications, and particularly as a cement: for this purpose it is superior to all those which have hitherto been employed for uniting broken glass, porcelain, &c. It may be used instead of glue or isinglass in applying colours, although when employed by itself it does not make a varnish capable of preserving its transparency when in contact with air.

A PROUD man is a fool in fermentation, that swells and boils over like a porridge-pot. He sets out his feathers like an owl, to swell and seem bigger than he is. He is troubled with a tumour and inflammation of self-conceit, that renders every part of him stiff and uneasy. He commits idolatry to himself, and worships his own image; though there is no soul living of his church but himself, yet he believes as the church believes, and maintains his faith with the obstinacy of a fanatic. He is his own favourite, and advances himself not only above his merit, but all mankind; is both Damon and Pythias to his own dear self, and values his crony above his soul. He gives place to no man but himself, and that with very great distance to all others, whom he esteems not worthy to approach him. He believes whatever he has receives a value in being his; as a horse in a nobleman's stable will bear a greater price than in a common market. He is so proud, that he is as hard to be acquainted with himself as with others; for he is very apt to forget who he is, and knows himself only superficially; therefore he treats himself civilly as a stranger, with ceremony and compliment, but admits of no privacy. He strives to look bigger than himself, as well as others; and is no better than a parasite and flatterer. A little flood will make a shallow torrent swell above its banks, and rage, and foam, and yield a roaring noise, while a deep silent stream glides quietly on; so a vain-glorious, insolent, proud man, swells with a little frail prosperity, grows big and loud, and overflows his bounds, and when he sinks, leaves mud and dirt behind him. His carriage is as glorious and haughty, as if he were advanced upon men's shoulders, or tumbled over their heads like Knipperdolling. He fancies himself a Colosse; and so he is, for his head holds no proportion to his body, and his foundation is lesser than his upper stories. We can naturally take no view of ourselves, unless we look downwards, to teach us what humble admirers we ought to be of our own value. The slighter and less solid his materials are, the more room they take up, and make him swell the bigger; as feathers and cotton will stuff cushions better than things of more close and solid parts.—BUTLER.

LONDON:
JOHN WILLIAM PARKER, WEST STRAND.
PUBLISHED IN WEEKLY NUMBERS, PRICE ONE PENNY, AND IN MONTHLY PARTS, PRICE SIXPENCE.
Sold by all Booksellers and Newsvenders in the Kingdom.